CLAIMS

WHAT IS CLAIMED IS:

1. A system for generating transactions on a bus comprising:

at least one instruction memory storing a predefined bus stimuli instruction; and

at least one phase generator coupled between the bus and the instruction memory for providing signals to the bus in response to the instruction.

2. The system of claim 1 wherein the instruction memory stores a plurality of predefined bus stimuli instructions.

3. The system of claim 1 wherein the instruction comprises an instruction word having a predefined length.

4. The system of claim 1 wherein the at least one phase generator is further responsive to signals received from the bus.

5. The system of claim 2 further comprising a response memory coupled to the phase generator storing predefined responses to signals received from the bus.

6. The system of claim 1 wherein the at least one phase generator includes at least one digital logic device responsive to the instructions and at least one phase engine for controlling timing of the bus stimuli.

7. The system of claim 6 wherein the digital logic device comprises a field programmable gate array.

a request logic device responsive to the instruction memory;

a data logic device responsive to the instruction memory;

a data memory coupled to the data logic device storing data to be exchanged with agents on the bus;

a system protocol generator coupled to the bus and the flow logic device;

an arbitration protocol generator coupled to the flow logic device and the bus;

a request protocol generator coupled to the flow logic device, the request logic device and the bus;

a snoop/error protocol generator coupled to the request logic device and the bus;

a data protocol engine coupled to the data logic device; and

a transaction response memory coupled to the flow logic device and the request logic device storing digital data representing predefined responses to signals received from the bus.

16. A system for generating transactions on a bus comprising:

first means for storing instructions representing predefined bus stimuli; and

second means for providing signals to the bus in response to the stored instructions.

17. The system of claim 16 further comprising third means for storing data representing predefined responses to signals received from the bus, and wherein the second means implements the predefined responses based on the signals received from the bus.

18. The system of claim 16 further comprising fourth means for controlling the timing of the signals provided to the bus by the second means.

19. The system of claim 16 further comprising fifth means for storing data to be exchanged with agents on the bus, wherein the second means transmits data from the fifth means in response to the instructions stored in the first means.

20. The system of claim 19 wherein the second means further receives data from the bus and stores the data in the fifth means.

21. A method for generating transactions on a bus comprising the acts of:

receiving instruction words representing predefined bus stimuli; and

converting the instruction words to signals that, when applied to the bus, execute at least one phase of a bus transaction.

22. The method of claim 21 further comprising the acts of:

defining a sequence of desired bus transactions; and

assembling the sequence of desired bus transactions into an object file comprising instruction words representing predefined bus stimuli that, when applied to a bus, implement the sequence of bus transactions.

23. The method of claim 21 further comprising the act of providing predefined signals to the bus in response to signals received from the bus.

24. The method of claim 21 further comprising the act of exchanging data with agents on the bus.

25. A method for verifying the operation of at least one bus agent using a bus transaction generator, the bus transaction generator providing bus stimuli in response to a predefined sequence of bus transactions and in response to signals received from the bus, the method comprising the acts of:

coupling at least one bus agent to the bus;

coupling the bus transaction generator to the bus;

defining a sequence of bus transactions;

assembling the sequence of bus transactions into an object file representing bus stimuli;

initializing the at least one bus agent; and

executing the bus stimuli.

26. The method of claim 25 wherein the defining act includes bus stimuli that when executed by the transaction generator, generates errors on the bus.

27. The method of claim 25 wherein the defining act comprises defining processor-initiated bus transactions.

28. The method of claim 25 wherein at least one processor is coupled to the bus, and wherein the defining act comprises defining bus transactions that simulate target agent bus transactions.